CLAIMS

WHAT IS CLAIMED IS:

1. A white pozzolan for use in blending with portland cement in concrete applications, comprising a finely ground vitreous calcium aumino-silicate ($CaO\text{-}Al_2O_3\text{-}SiO_2$) low alkali, low iron content glass derived from glass manufacturing by-products.

2. A composition in accordance with claim 1, wherein said glass by-products are waste glass fibers having low alkali and low iron content, and low levels of discolorants, whereby said composition may be effectively blended with said portland cement for use in white and colored concrete applications.

3. A composition in accordance with claim 2, having an alkali content by weight of not more than 2% as (Na_2O+K_2O), an iron content by weight of not more than 0.8% as Fe_2O_3, and which is substantially white in color.

4. A composition in accordance with claim 3, wherein said pozzolan is a powder having a reflectance value of at least 80 as measured by a Technibrite TB-1C colorimeter according to the ISO 2467, 2471 method and a blocky, relatively equi-dimensional particle shape with substantially no residual high aspect ratio fibers.

5. A composition in accordance with claim 4, wherein the said pozzolan has a P.S.D. such that at least 95% by weight of the particles are of less than 45 microns E.S.D.

6. A composition in accordance with claim 4, wherein the said pozzolan has a P.S.D. such that at least 95% by weight of the particles are of less than 25 microns E.S.D.

7. A composition in accordance with claim 4, wherein the said pozzolan has a P.S.D. such that at least 95% by weight of the particles are of less than 10 microns E.S.D.

8. A composition in accordance with claim 4, wherein the said pozzolan has a P.S.D. such that at least 95% by weight of the particles are of less than 5 microns E.S.D.

9. A composition in accordance with claim 4, wherein the said pozzolan has a P.S.D. such that at least 95% by weight of the particles are of less than 3 microns E.S.D.

10. A composition in accordance with claim 4, wherein the average aspect ratio of the particles of the pozzolan is less than 2:1.

11. A blended pozzolanic cement produced by blending with portland cement, from 5 to 40% by weight of the total composition of a fine white pozzolan comprising finely ground vitreous low alkali low iron glass derived from glass manufacturing by-products.

12. A blended cement in accordance with claim 11 which is substantially white; said cement having a reflectance of at least 80 on an "Rd" scale measured on a Hunter Lab colorimeter.

13. A white pozzolanic cement produced by intergrinding of a vitreous low alkali, low iron pozzolan derived from glass manufacturing by-products with white portland cement clinker and white gypsum.

14. A raw feed for white cement clinker production comprising a finely ground vitreous low alkali, and low iron content glass derived from fine grinding of glass fibers.

15. A white pozzolanic cement in accordance with claim 13, wherein said white clinker is selected from one or more members of the group consisting of Type I, Type II, Type III, Type IV, or Type V ASTM C-150 cements.

16. A colored pozzolanic cement comprising the white cement of claim 12 together with an admixed pigment.

17. A blended pozzolanic cement in accordance with claim 11, further comprising one or more functional cement additives selected from the group consisting of accelerators, retarders, water-reducers/plasticizers, corrosion inhibitors, and pigments.

18. A process for converting glass fiber wastes into high quality filler and pozzolan products, comprising shredding long entangled strands of low alkali and low iron content vitreous glass fibers into short fibers, adjusting the moisture content of the short fibers, grinding the short moisture adjusted fibers, and classifying the ground material to produce a uniform high

quality substantially white product with precise control over the maximum particle size and particle size distribution.

19. A process in accordance with claim 18, wherein the waste glass fibers have by weight an alkali content of less than 2%, and an iron content of less than 0.8%.

20. A process in accordance with claim 19, wherein said shredding provides short glass fibers of less than 5 mm.

21. A method in accordance with claim 20, wherein said shredded and moisture adjusted short fibers are ground in a vertical attrition mill using an energy input of at least 100 kW/hrs/ton of said fibers.

22. A process in accordance with claim 21, wherein said shredded short fibers have an adjusted moisture content of less than 10% by weight.

23. A process in accordance with claim 22, wherein said shredded short fibers have an adjusted moisture content of less than 2% by weight.

24. A process in accordance with claim 22, wherein said shredded short fibers have an adjusted moisture content of 0.5 to 1.0% by weight.